542,256

(54) Title: A SIGNAL PROCESSING APPARATUS AND METHOD FOR DECISION DIRECTED SYMBOL SYNCHRONISATION
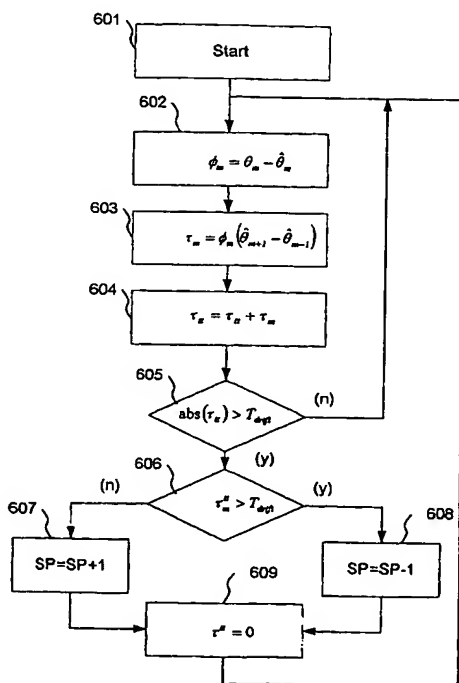
(57) Abstract: A signal processing apparatus (400;800) comprising: a demodulator (e.g. a PSK demodulator) (407;900) arranged to demodulate a received signal, which carries consecutive symbols (a_1,..., a_4) at a symbol rate, wherein the demodulator (407;900) is arranged, based on sample values of the received signal, to calculate an error value (φ_m) of a given symbol relative to a decision-directed determination of an expected symbol value (I); and a phase-shifter (406,409;801;1002,1013) arranged to shift the phase of sampling points in time at which points in time, sample values of the received signal is provided to the demodulator (407;1000). The invention is characterized in that the apparatus (400;900) comprises a processor (408;601;1000) arranged to evaluate an error metric (τ), at the symbol rate, for a given symbol as a function of the error value (φ) and symbol values (II), and to determine whether to shift the phase of the sampling points in time based on further evaluation of the error metric (τ). Thereby an optimal sampling instant can be provided based on estimation of Inter Symbol Interference.

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Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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